

GEMSOV, G., avtolyubitel' (Moskva)

Replacing a damaged tube. Za rul. 18 no.2:21 F '60.  
(MIRA 13:6)

(Automobiles--Tires)

GETSOV, G., avtolyubitel'

If you get tired stop on the shoulder of the road. Za bezop.  
dvizh. 4 no.5:10 My '62. (MIRA 15:7)

(Automobiles--Touring)

STAMOV-VITKOVSKI, A. (Moskva); MOSHCHAKOV, V. (Moskva); GETSOV, G. (Moskva)  
BYUNOSOV, Yu. (Tyumen'); GOMZOV, V. (Orenburg); MAKHOTIN, A. (Moskva)  
KHAYMOV, B.; MAL'TSEV, N. (Orel); MAKSIMOV, D. (Leningrad);  
MOKROBORODOV, V. (Sverdlovsk)

Advice from the experienced. Za rul. 19 no.12:18-20 D '61.  
(MIRA 14:12)

1. Stantsiya Perlovskaya, Moskovskaya obl. (for Khaymov).  
(Motor vehicles--Maintenance and repair)

GETSOV, G.

Is the spark plug operating? Za rul. 20 no.11:27 N '62.  
(MIRA 15:11)  
(Spark plugs--Testing)

GETSOV, G.

S.O.S. signal. Za bezop.drish. 5 no.10:14-15 0 '62.  
(MIRA 15:12)  
(Signals and signaling (Automobile))

24467-66 ERI(a)/ERI(a)/ERI(a)/ERI(a)/ERI(a)/ERI(a)/ERI(a)/ERI(a)  
 ACC NR: AT6008652 IJP(c) JD/M/US  
 AUTHOR: Getsov, L. B. (Leningrad) 62  
 59  
 B+1

ORG: none

TITLE: Short term creep and relaxation of heat resistant materials 18

SOURCE: Vsesoyuznoye soveshchaniye po voprosam staticheskoy i dinamicheskoy  
 prochnosti materialov i konstruktsionnykh elementov pri vysokikh i niskikh  
 temperaturakh. 3d. Termoprochnost' materialov i konstruktsionnykh elementov (Thermal  
 strength of materials and construction elements); materialy soveshchaniya. Kiev,  
 Naukova dumka, 1965, 90-97

TOPIC TAGS: heat resistant material, material deformation, heat effect, ultimate  
 strength, stress relaxation, creep, steel/ EI612 steel

ABSTRACT: The author conducted experiments to measure heat deformations of steels  
 used as gas turbine blades and disks. The work was undertaken for the following  
 purposes: a) to determine the curves of short-term creep, ultimate strength, and  
 relaxation at high initial stresses; b) to correlate the curves of short-term creep  
 and ultimate strength with data obtained in tests at high rates of deformation and in  
 tests of ultimate strength; c) to correlate experimental curves of relaxation with  
 computations according to various theories of creep. The tests were conducted with  
 EI612 steel, having a chemical content (%) of: 0.04 C, 0.27 Si, 1.54 Mn, 3.17 W.

Cord 1/2

L 24467-66

ACC NR: AT6008652

3

15.45 Cr, 36.5 Ni, 1.44 Ti. An IP-4M machine was used in the tests; deformations were initially recorded every 15 seconds and later measurements were made every 1, 5, 15, and 30 minutes. Relaxation measurements were made on a 5IM testing machine. Curves showing the creep rates, long-term strength, and relaxation rates of K1012 steel at various temperatures and test conditions are given. The results indicate that the best approximation for describing the short-term creep and relaxation is the theory of flow and strengthening. This theory, however, is inapplicable for computing the variation of the stressed state for a time not exceeding 10-20 minutes. R. A. El'yashev and N. S. Lokalov assisted in the experiments. Orig. art. has 5 figures.

SUB CODE: 11 / SUBM DATE: 19Aug65/ ORIG REF: 009

Cons. 2/20/65

1 24452-66 KET(1)/ETI(1)/TMA(1)/T/ETI(1) T/ETI(1) m/m/66  
ACC NR: AT6008653 (N) SOURCE CODE: UR/0000/65/000/000/0098/0102

AUTHOR: Cetsov, L. B. (Leningrad)

ORG: none

TITLE: A comparative study of heat resistance of two grades of austenite steels

SOURCE: Vsesoyuznoye soveshchaniye po voprosam staticheskoy i dinamicheskoy  
prochnosti materialov i konstruktsionnykh elementov pri vysokikh i nizkikh  
temperaturakh, 3d. Termoprochnost' materialov i konstruktsionnykh elementov (Thermal  
strength of materials and construction elements); materialy soveshchaniya. Kiev,  
Naukova dumka, 1965, 98-102

TOPIC TAGS: heat resistant material, austenite steel, durability, metal test/  
EI612 austenite steel, EI481 austenite steel

ABSTRACT: A comparison is made between the heat resistance of austenite steels EI612  
and EI481. The study makes use of statistical methods in evaluating the heat  
resistance of the two steels at 873 and 923K. The chemical contents of the two  
steels are compared in Table 1. The author reviews earlier related work in the field  
of analysis of heat strength and durability of metals. His approach is one of  
correlation analysis wherein: a) there is determined the form of relationship between  
 $\sigma$  and  $t$  ( $\sigma$  - initial stress and  $t$  is the time to failure; b) there is determined the  
measure of dispersion between  $\sigma$  and  $t$ . Smooth specimens of each steel were exposed

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L 24452-66

ACC NR: AT6008653

Table 1

Steel	C	Si	Mn	S	P	Cr	Ni
KI 312	0.07— 0.1	0.17— 0.31	0.31— 1.6	0.006— 0.01	0.01— 0.019	14.2— 15.26	34.58— 36.36
KI 481	0.36— 0.4	0.39— 0.54	8.6— 9.0	0.006— 0.015	0.02— 0.027	12.3— 13.02	7.85— 13.02
Steel	W	Ti	Mo	V	Nb	N	
KI 312	2.82—3.6	1.05—1.7	0—0.77	—	—	—	
KI 481	—	0.015—0.09	1.18—1.27	1.33— 1.42	0.31— 0.36	0.049— 0.096	

to prolonged strength tests, and the results were curve-fitted by regression analysis. Dispersion was measured with the assumption that normal distribution describes the  $\sigma$  and  $t$  variable relationship. It was found that the mean life of the two steels was nearly identical in the test circumstances. Quantitative confidence intervals are developed with the regression analysis for each steel. Test results are plotted and tabulated. Orig. art. has: 2 tables and 2 figures.

SUB CODE: 11 / SUBM DATE: 19Aug65/ ORIG REF: 007

Card 2/2da

GETSOV, G. B.

Extermination of flies 2, izd. Moskva Medgiz, 1940. 14 p. (54-46762)

RA641.F6G4 1940

GETSOV, G. S.

"New Training Plan for Pediatrics Faculty of Medical Institutes,"  
Pediatrics, No 5, 1948 M.

GETSOV, G. B.

"Large-Scale Sanitation Instruction Work for Students," Sov. Med.,  
No. 5, 1949 Prof. Moscow, 1949

GETSOV, G.B

GETSOV, G. B.

Medical practice of students of pediatrics taking the six-year course. *Pediatrria*, Moskva No. 6, Nov.-Dec. 50. p. 51-7

1. Moscow.

CLAL 20, 3, March 1951

GETSOV, G.B.

[Practice in industry of students in medical institutes giving  
six years of instruction] Proisvodstvennaia praktika studentov  
meditsinskikh institutov pri shesti godakh obucheniia. Moskva,  
Medgiz, 1952. 230 p. (MLBA 7:8)  
(Medicine--Study and teaching)

GETSOV G.B.

GETSOV, G.B., professor

Work practice in conducting ten-day courses for the advanced training of physicians in medical institutes. Adm. Soc. Sci. 1 no.3:31-33 Mar '67. (USSR 1:9)

1. Zaveduyushchiy kursom okhrany materinstva, mladoststva i detstva Sene Moskovskogo meditsinskogo instituta.  
(MEDICINE--STUDY AND TEACHING)

GETSOV, G. B.

GETSOV, G.B., prof. (Moskva)

Pediatric specialists in the U.S.S.R. Pediatrics no.10:39-45 0 '57.

(MIRA 11:2)

(PEDIATRICS--STUDY AND TEACHING)

AUTHOR: Getsov, G.B., Professor 3-10-22/30

TITLE: 10-Day Courses for the Perfecting of Physicians (Dekadniki usovershenstvovaniya vrachey)

PERIODICAL: Vestnik Vysshey Shkoly, 1957, # 10, pp 70-71 (USSR)

ABSTRACT: One or two districts where students get practical work are attached to every medical institute. The author describes the ten-day courses of the 2nd Moscow Institute of Medicine in the Moscow, Kalinin and Kaluga districts taking place once or twice a year. On the whole 8 of these courses have been given from 1952 - 1957 during the winter holidays or in June. They are intended for physicians of medium or high qualification, being too brief for newer physicians.

The courses begin on the 25th January and terminate on the 4th February. The working day comprises 3 hours of special work in clinics and two lectures of 2 hours each. Each ten-day course is terminated by a conference of physicians, professors and teachers. The 8 courses were attended by 972 participants, the highest number in one course was 205. Of 414 lectures, 228 were read by professors. Between 12 - 19 clinical chairs of the institute took part in the practical-seminar section.

Card 1/2

10-Day Courses for the Perfecting of Physicians

3-10-22/30

Such ten-day courses can be organized in every medical  
vuz. They may also be created at all sites where students  
perform practical training (factories, sovkhozes MTS, hos-  
pitals, schools, etc.).

ASSOCIATION: Second Moscow Medical Institute imeni N.I. Pirogov (2-y  
Moskovskiy meditsinskiy institut imeni N.I. Pirogova)

AVAILABLE: Library of Congress

Card 2/2

GITSOV, G.B., prof.

Hospital practice for students of medical institutes and  
prospects for its development. Sov.med. 22 no.1:135-143 Ja '58.  
(MIRA 11:4)

1. Iz II Moskovskogo meditsinskogo instituta imeni N.I.  
Pirogova.

(INDUSTRIAL HYGIENE  
industrial practice for med. students in Russia (Rus))  
(EDUCATION, MEDICAL  
same (Rus))

GETSOV, G.B., prof.

Ten-day postgraduate medical training for physicians working  
at bases for industrial practice for medical institute stu-  
dents. Sovet. med. 27 no.9:119-121 S'63 (MIRA 1742)

1. Iz II Moskovskogo meditsinskogo instituta.

GETSOV, I., kand.tekhn.nauk

Determining the optimum volume of ship repairs for a ship  
repair enterprise. Rech. transp. 21 no.6:25-28 Je '62. (MIRA 15:7)  
(Ships—Maintenance and repair)

GETSOV, I., dotsent, kandidat tekhnicheskikh nauk.  
~~XXXXXXXXXX~~

Shipbuilding and ship repair enterprises during the fifth five-year plan.

Mor. i rech. flot 13 no. 1:15-18 My '53.

(MIRA 6:10)

(Shipbuilding)

GETSOV, I.Ye., dotsent, kandidat tekhnicheskikh nauk.

~~no.1:18-23 Ja-F '53.~~

Calculating the production capacity of a ship repair yard. Rech.transp. 13  
no.1:18-23 Ja-F '53. (MLHA 6:11)

(Shipyards)

GETSOV, Iosif Yefremovich; CHEKREPIN, V.Ye., redaktor; YEFIMOV, M.I.,  
retsensent; KRASNAYA, A.K., tekhnicheskiiy redaktor

[Principles of planning shiprepair and shipbuilding enterprises]  
Osnovy proektirovaniia sudoremontnykh i sudostroitel'nykh pred-  
priatii. Moskva, Izd-vo "Rachnoi transport," 1955. 471 p.  
(Shipyards) (MLRA 8:8)

GFTSOV, I.Ye., kand. tekhn. nauk.

Power installations of the near future for river craft. *Tekh. transp.*  
17 no.1:21-24, 25 Ja '58. (MIRA 11:3)

(Ship propulsion)

GITSOV, Iosif Yefremovich, dotsent, kand.tekhn.nauk; GUSKY, M.N.,  
retsensent; GHEREPHIN, V.Ye., retsensent; CHERNOV, M.I., red.  
VINOGRADOVA, M.M., red.isd-va; BOBROVA, V.A., tekhn.red.

[The design of ship-repair and shipbuilding enterprises]  
Proektirovanie sudoremontnykh i sudostroitel'nykh predprieti.  
Moskva, Isd-vo "Machnoi transport," 1959. 335 p.

(MIRA 13.6)

(Shipyards)

(Shipbuilding)

GEL'FAND, Aleksandr Yevseyevich, inzh.; GETSOV, Ionif Yefremovich, kand.  
tekhn. nauk; CHERNOV, M.I., retsenzent; DOLGOLENKO, P.V., retsen-  
zent; TYUTCHEV, N.A., red.; VITASHKINA, S.A., red. izd-va; YERMAKO-  
VA, T.T., tekhn. red.

[Precision and finish of the machining of parts in repairing ship  
machinery] Tochnost' i chistota obrabotki detalei pri remonte su-  
dovykh mekhanizmov. Moskva, Izd-vo "Rechnoi transport," 1961. 151 p.  
(MIRA 14:12)

(Marine engines—Maintenance and repair)

GETSOV, I., prof., doktor tekhn.nauk

Limits to cooperation in ship repairing enterprises.

Mor.flot 25 no.6:34-35 J1 '65.

(MIRA 19:1)

GETSOV K.

BULGARIACultivated Plants - Grains.

1-4

Abs Jour : Izv Znan - Biol., No 9, 1958, 29175

Author : Sharkov, T.K., Gyrbucanov, I., Getsov, K.

Inst : -

Title : Contemporary Problems Relating to the Growth of Different Varieties of Seeds.

Orig Pub : Sel'skostop, Misy, 1956, 1, No 11, 676-681.

Abstract : This paper contains a brief statement on the organization of seed growing in the USSR and the problems of Bulgarian seed growing and conserving the purity of different varieties of grain crops.

Card 1/1

GUNGHEV, Zdravko St.; RUSINKOVA-KARAIVANOVA, Marina; GEMITEOVA-GUNGHEVA,  
Tamara; GERSOV, Kiril Iv.

Economic effectiveness of mineral fertilizers. Godishnik Biol 56  
no.3:335-414 '61-'62 [publ. '63].

Doc. Engineering - Deformation

Doc. 1/1 Pub. 103 - 7/24

Authors : Gaisov, L. B.

Title : Deformation of parts during thermal treatment

Periodical : Stan. i instr. II, 19-20, Nov 1954

Abstract : The results obtained at the Sverdlov Metallurgical Plant, during systematic measurements of deformations of details, subjected to thermal treatment, are listed. The difference in the deformation of cemented and plain steel parts, subjected to thermal treatment, is explained. It was established (in the case of cemented parts) that the degree of deformation depends upon the dimensions of the machined part - internal diameter and wall thickness. Any change in the internal diameter (in the case of steel parts) depends only upon the wall thickness. Table; graph; drawings.

Institution : ...

Submitted : ...

Eng. Engineering - Deformation

Doc. 1/1 Pub. 103 - 7/24

Authors : Gerasov, I. B.

Title : Deformation of parts during thermal treatment

Periodical : Stan. i instr. II, 19-20, Nov 1954

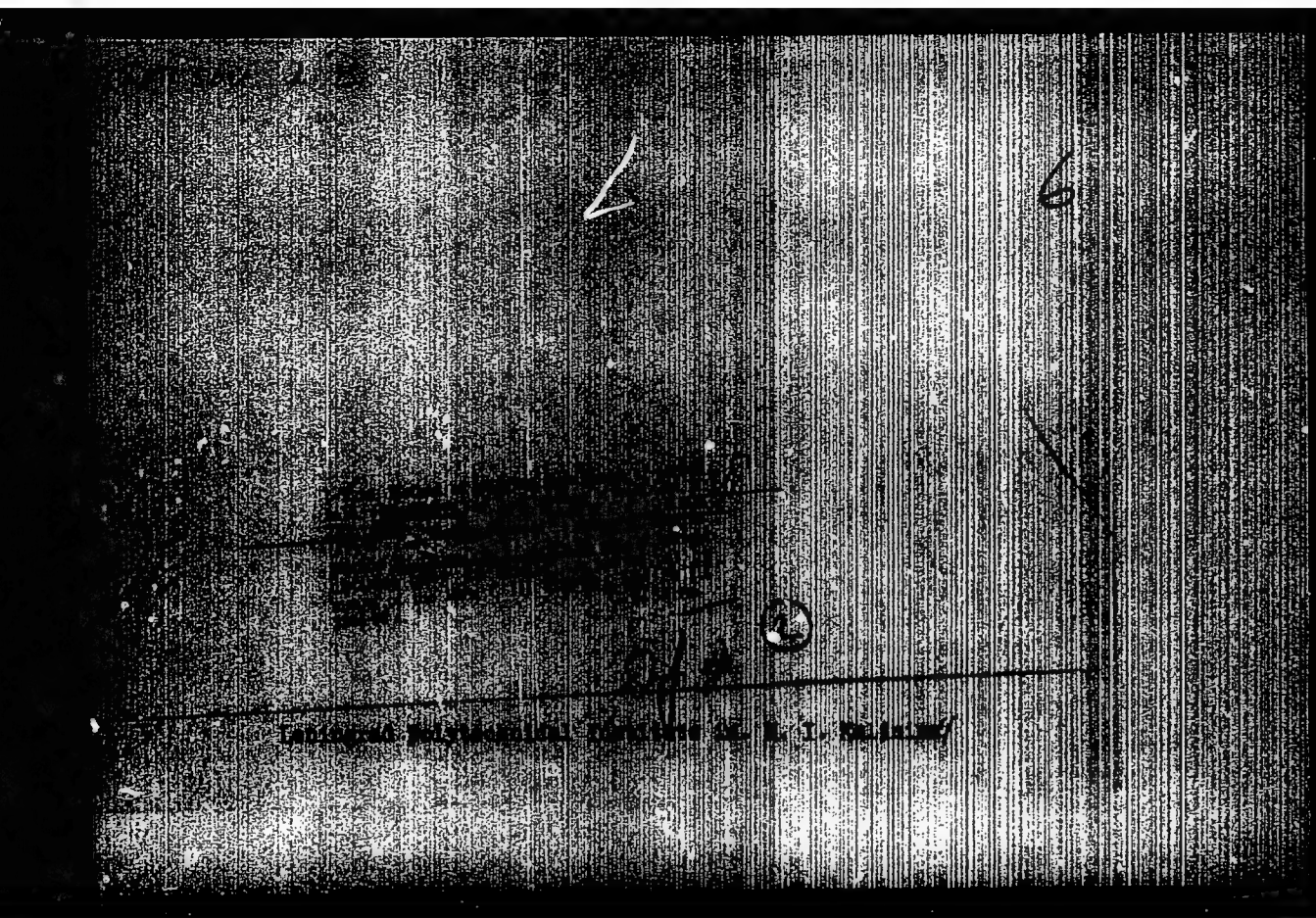
Abstract : The results obtained at the Sverdlov Metallurgical Plant, during systematic measurements of deformations of details, subjected to thermal treatment, are listed. The difference in the deformation of cemented and plain steel parts, subjected to thermal treatment, is explained. It was established (in the case of cemented parts) that the degree of deformation depends upon the dimensions of the machined part - internal diameter and wall thickness. Any change in the internal diameter (in the case of steel parts) depends only upon the wall thickness. Table; graph; drawings.

Institution : ...

Submitted : ...

"APPROVED FOR RELEASE: 09/24/2001

CIA-RDP86-00513R000514930014-4



APPROVED FOR RELEASE: 09/24/2001

CIA-RDP86-00513R000514930014-4"



AUTHOR: Getsov, L.B., Engineer SOV/28-58-6-8/34

TITLE: The Calculation of Deformations During Thermal Processing of Metals (Uchet deformatsiy pri termicheskoy obrabotke metallov)

PERIODICAL: Standartizatsiya, 1958, Nr 6, pp 34-36 (USSR)

ABSTRACT: At the Sestroretsk Instrumental Plant imeni Voskov, the causes for the deformation of taps during thermal processing were investigated in order to reduce the deviations. During tempering at 780-800°C and cooling at 50°C in a caustic soda solution, followed by annealing at 200°C, the deviations are smaller during annealing than during tempering (Table 1). Tempering at 820-840°C and cooling in oil ensures the necessary hardness and increases the average diameter by 0.01 to 0.005 mm. The investigations demonstrated

SOV/28-58-6-8/34

The Calculation of Deformations During Thermal Processing of Metals

and annealing very exactly, by an equal heating and cooling of the processed parts, etc.  
There are 2 graphs and 3 tables.

ASSOCIATION: Sestroretskiy instrumental'nyy zavod imeni Voskova (Sestroretsk Instrumental Plant imeni Voskov)

Card 2/2

AUTHOR: Getsov, L. B.

SCV/32-24-10-31/70

TITLE: Method of **Testing** Refractories at Variable Temperatures and Stresses (Metodika ispytaniy zharostoykikh materialov pri nestatsionarnykh temperaturakh i napryazheniyakh) Survey of Foreign Literature (Obzor zarubezhnoy literatury)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 10, pp 1247-1251 (USSR)

ABSTRACT: Since not all temperatures and stresses occurring in the use of the corresponding machine parts ~~when testing~~ metals **under** cyclic stresses can be realized at the same time, the investigations were carried out in simplified cycles. The individual types of cycles are given in a graphical representation and are discussed as well. The rectangular temperature cycle (Refs 1-4) and the tests according to Smith and Houston (Smit and Gauston) (Ref 4) are mentioned, as well as the triangular temperature cycle (Refs 1,2,4) and the sinoidal cycle. Among the special temperature cycles the investigations by Miller (Ref 2), and among the rectangular cycles (according to stress) the experiments by Simmons and Gross (Kross) (Ref 8) are mentioned. There are no data in publications on the triangular and sinoidal cycles (according to stress). For the case of a simultaneous modification

Card 1/2

SOV/32-24-10-31/70

Method of Investigating Refractories at Variable Temperatures and Stresses.  
Survey of Foreign Literature

of temperature and stress the experiments by Foley (Ref 9) are mentioned. The diagram of the apparatus used in the experiments by Guarnieri (Gvarnieri) (Ref 5) are also given, as well as a comment divided into four sections dealing with the results obtained in the cyclic tests with respect to creeping and permanent strength. The papers by Robinson (Robinson) (Ref 16) and Miller (Ref 2) are mentioned in connection with these test results. Among the investigations on thermal fatigue the papers by Haytorne (Khaytorn) (Ref 17), Lardge (Lardzh) (Ref 18), Hunter (Khunter) (Ref 19), Weinberg and Sildan (Vaysberg and Zoldan) (Ref 20) (at the Syuaren Power Plant), as well as those by Coffin and Wesley (Koffin and Tesley) (Ref 21) are mentioned. There are 3 figures and 21 references, 0 of which is Soviet.

Card 2/2

GETSOV, L.B., red.; TAUBINA, M.G., red.; SOBOLEVA, Ye.M., tekhn.red.

[Heat-resistant alloys under changing temperatures and stresses]  
Zharoprochnye splavy pri izmeniaiushchikhsia temperaturakh i  
napriazheniakh; sbornik statei. Moskva, Gos.energ.izd-vo, 1960.  
288 p. (MIRA 13:12)

(Heat-resistant alloys)  
(Metals, Effect of temperature on)

18.8100 1045, 1418

86068  
S/180/60/000/005/009/033  
E111/E135

AUTHORS: Getsov, L.B., and Taubina, M.G. (Leningrad)

TITLE: Heat Resistance of Austenitic Alloys<sup>16</sup> with Cyclically Changing Temperatures and Stresses

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1960, No. 5, pp.100-109

TEXT: The present authors (Ref.4) and others (e.g. Refs 1, 3) have suggested evaluation of the length of service of parts under variable conditions on the basis of the additivity of deterioration of mechanical properties. They now discuss such relations, with special reference to cyclic temperature changes, and classify alloys according to the structural transformation they then undergo. They consider in detail regeneration of the properties of nickel base alloys with intermetallide compounds. Table 1 shows mechanical properties at 20°C after various systems of heat treatment of type 3M-607 (EI-607), EI-869 and EI-765 alloys. Corresponding microstructures are shown in Fig.1 for EI-765 and electron-micrographs in Fig.2 for EI-607. Reported experiments (Ref.7) with type EI-612 alloy were also repeated and these are

Card 1/3

84068

S/180/60/000/005/009/033

E111/E135

Heat Resistance of Austenitic Alloys with Cyclically Changing  
Temperatures and Stresses

a great decrease in long-time strength and plasticity in fracture of austenitic alloys with a variable grain-size, recrystallized structure; the decrease is substantially greater than the errors obtained by using calculation methods. Creep rates under cyclic temperature changes with a period of up to 8 hours for alloys with intermetallide hardening agree well with calculated values; however, this does not apply to steel G. Periodical unloading carried out with a different frequency in the testing process does not impair long-time strength. The phase analysis was carried out by N.Ye. Shlyepanova.

There are 3 figures, 4 tables and 8 references: 6 Soviet and 2 English.

Card 3/3

GITSOV, L.B., referent

Alloy for high durability gas turbine blades (from "American  
Society of Mechanical Engineers," no. A 191, 1958). Metalloved.  
i term.obr.met. no.6:54-57 Je '60. (MIRA 13:7)  
(United States--Heat-resistant alloys)  
(Gas turbines--Blades)

S/129/60/000/009/003/009  
E193/E483

AUTHORS: Getsov, L.B., Engineer, Zhirnov, D.F., Terekhov, K.I.  
and Taubina, M.G., Candidates of Technical Sciences

TITLE: The Effect of Structure on the High Temperature  
Properties of Alloys

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov,  
1960, No.9, pp.12-16

TEXT: Having determined experimentally the relationship between the degree of preliminary deformation and the grain size of recrystallized material, the authors studied the effect of grain size on the mechanical properties of steel EI481 and alloy EI437B. The mechanical tests were carried out both on laboratory test pieces with a predetermined grain size and on specimens cut from finely- and coarsely-crystalline portions of industrial forgings. The short-time strength of the steel EI481 at room and elevated temperatures was not affected by the variation of the grain size. However, the time-to-rupture of specimens with the grains varying in size between 0.5 and 5 mm, and determined at 550, 600 and 650 °C, was considerably lower than that of specimens with uniform, finely-crystalline structure. U.T.S., elongation and reduction of area  
Card 1/2

S/129/60/000/009/003/009

E193/E483

The Effect of Structure on the High Temperature Properties of Alloys

of alloys EI437B at 20 and 700°C, decreased with increasing grain size but the creep properties of this alloy were not affected by this factor, probably because the maximum grain size obtained (2 mm) was not sufficiently large to produce measurable effects. ✓  
A.P.Ozerova, N.D.Shakhbazova, M.V.Malyutina and L.B.Aleksandrova participated in the experiments. There are 5 figures and 3 tables.

Card 2/2

S/114/60/000/004/006/009  
E193/E335

AUTHORS: Getsov, L.B., Engineer and Taubin, M.G.,  
Candidate of Technical Sciences

TITLE: Long-term Studies of Ageing and Creep Properties  
of Steel ЭИ481 (EI481)

PERIODICAL: Energomashinostroyeniye, 1960, <sup>6</sup>No. 4,  
pp. 32 - 35

TEXT: Owing to its high strength at devated temperatures.  
combined with a relatively low price (owing to the low nickel  
content), steel EI481 containing 0.37% C, 8.4% Mn, 12.58% Cr,  
8.11% Ni, 0.35% Nb, 1.3% Mo, 1.3% V, 0.023% S, 0.019% P and  
0.67% Si has been extensively used as the material of gas  
turbine discs, particularly in engines designed to operate  
for a comparatively short time. The object of the present  
investigation was to determine to what extent this steel  
could be used in the construction of conventional turbines  
for service in the transport and power-generating industries.  
The experiments were carried out on test pieces measuring  
Card 1/5

S/114/60/000/004/006/009  
E193/E335

Long-term Studies of Ageing and Creep Properties of  
Steel EI481

90 x 90 mm, and on a forged turbine disc 580 mm in diameter. The preliminary heat treatment consisted of holding the test pieces at 1 145 °C for 1 h 45 min, followed by water-quenching and a two-stage tempering treatment (16 h at 670 °C + 16 h at 1 780 °C). In the first series of tests, the specimens were aged at 550, 600, 650 and 700 °C for periods ranging from 100 to 10 000 h, after which the U.T.S., 0.2% proof stress, reduction of area, elongation and impact strength of the alloy were measured at 20 and 650 °C. In the second stage of the investigation, the creep strength of steel EI481 was determined and the effect of the grain size and the presence of stress-risers (notches) on this property was investigated. The object of the third series of tests was to study the oxidation resistance of the alloy at 650 °C in moist air (17% H<sub>2</sub>O) and at 700 °C in air, containing 4.8% H<sub>2</sub>O + 0.5% SO<sub>2</sub>.

Card 2/5

S/114/60/000/004/006/009  
E193/E335

Long-term Studies of Ageing and Creep Properties of  
Steel EI481

Finally, the effects of the preliminary heat treatment on the mechanical properties of the alloy were studied. The following conclusions were reached.

1) Neither the structure nor the properties of steel EI481 are significantly affected after 10 000 h service at temperatures  $\leq 600^{\circ}\text{C}$ , 5 000 h service at  $650^{\circ}\text{C}$  or 5 000 h service at  $700^{\circ}\text{C}$ . The structure of the forged disc, subjected to this treatment, has been found to be homogeneous throughout, with the exception of typical of this steel, carbide agglomerates associated with the proneness of this steel to liquation.

2) The creep strength of the steel studied is characterized by the following figures: 10 000 h at  $550^{\circ}\text{C}$  -

- 39 to 46  $\text{kg/mm}^2$ ; 10 000 h at  $600^{\circ}\text{C}$  - 33 to 36  $\text{kg/mm}^2$ ;

5 000 h at  $650^{\circ}\text{C}$  - 24.5 to 26  $\text{kg/mm}^2$ .

Card 3/5

S/114/60/000/004/006/009  
E193/E335

Long-term Studies of Ageing and Creep Properties of  
Steel EI481

- 3) The resistance of the alloy to deformation in creep can be assessed from the fact that the stress required to produce elongation of 1% after 10<sup>3</sup> h was 234 kg/mm<sup>2</sup> at 550 °C, 32 kg/mm<sup>2</sup> at 600 °C and 19 kg/mm<sup>2</sup> at 650 °C.
  - 4) If the structure of steel EI481 is characterized by nonuniform grain size, its creep strength at 600 and 650 °C is about 10% lower than that of homogeneous material and its plasticity is also slightly less. However, neither the rate of creep nor the short-term mechanical properties of this steel at 20 and 650 °C are affected by this factor. ✓
  - 5) Steel EI481 is notch-sensitive, particularly when stressed in creep at 600 °C.
  - 6) The resistance of this material to oxidation in moist air is quite satisfactory, the thickness of scale formed after 10 000 h at 650 °C being only 0.0064 mm. The rate of oxidation increases in the presence of SO<sub>2</sub>, the thickness
- Card 4/5

S/114/60/000/004/006/009  
E193/E335

Long-term Studies of Ageing and Creep Properties of  
Steel EI481

of the scale formed under these conditions, after 3 000 h at 700 °C, being 0.067 mm. Rapid oxidation may occur at a point of contact of two components, where the flow of air is restricted; scale, several mm thick, has been found to form under these conditions after relatively short exposure. This effect is probably associated with the "vanadium corrosion".

7) On the basis of the results of the present investigation, steel EI481 can be recommended as a construction material for turbines designed for 10 000 ~ 20 000 h service at 600 °C (this being the working temperature of the discs), or 3 000 - 5000h service at 650 °C. There are 6 figures, 4 tables and 1 Soviet reference.

Card 5/5

GETSOV, L.B., inzh.; TAUBINA, M.G., kand.tekhn.nauk

Heat resistance of austenite alloys under nonstationary  
conditions of testing. Teploenergetika 7 no.9:40-44 S '60.  
(MIRA 14:9)

1. Zavod Ekonomayzer i tsentral'nyy kotloturbinnyy institut.  
(Steel alloys--Testing)

GITSOV, I.B., PLYASUNKOV, B.F.

Use of the UIM-5 machine for testing long-period strength under  
changing cyclic loads. Zav.lab. 26 no.7:869-871 '60.

(MIRA 137)

(Testing machines) (Strength of materials)

S/096/62/000/005/003/009  
E194/E454

20.11.62

AUTHORS: Dinerman, A.P., Engineer, Getsov, L.B., Engineer

TITLE: An investigation of the strength of gas turbine discs  
under transient conditions

PERIODICAL: Teploenergetika, no.5, 1962, 38-43

TEXT: A study made at TsNIITMASH of the influence of multiple turbine starts on disc life of four discs made by the "Ekonomayzer" Works for a 600 kW turbine of steel grades ЭИ-612 (EI-612) and ЭИ-481 (EI-481) is described. Properties and analysis of the metals are given. Stresses were calculated on a computer, rim stress calculations being made without allowance for stress concentrations. Conditions were: speed 12000 rpm, frequent and rapid starts (1500 to 3000), calculated minimum temperature drop in the disc 300°C, disc rim temperature at 100% load = 520°C and at 125% load = 570°C. Test conditions were chosen to suit two opposite assumptions, namely (1) the intensity of disc cooling ensures the same temperature drop immediately after starting and during steady running and (2) after starting the temperature drop in the disc is gradually reduced to a level

Card 1/3

An investigation of the strength ...

S/096/62/000/005/003/009

E194/E454

corresponding to a steady state condition. The main objects were to compare the life and performance of the discs made of the two kinds of steel, to obtain an idea of the role of stress concentrators and to determine whether the disc operating conditions are safe if there are stress concentrations in the rim. All discs were tested to failure. Detailed test results are given and they show the following. The disc life is not reduced when the rim stress concentrations are increased. Discs of steel EI-481 were stronger than those of EI-612 under the stated test conditions. During the tests the discs of steel EI-481 were somewhat strained and those of steel EI-612 were not. Cracks originated at places of highest stress concentration and extended over the width of the disc despite the absence of any clear influence of stress concentrations on the disc performance. The numbers of cycles to disc failure was considerably greater than that at which cracks were observed to form so that the materials are plastic and cracked discs can operate safely for a time. Samples taken from the disc rims after testing were of the same mechanical properties as the initial materials. Attempts were

Card 2/3

An investigation of the strength ... S/096/62/000/005/003/009  
E194/E454

made to estimate disc life under rapid starting conditions by means of L.F.Coffin's formulae but they were unsuccessful. Calculated in accordance with Coffin, number of cycles to failure was much greater than the experimental number. However, the tests confirmed that the discs can operate safely under starting conditions which do not cause repeated plastic deformation of varying sign anywhere in the disc. There are 6 figures and 6 tables.

ASSOCIATION: TsNIITMASH - zavod "Ekonomayzer"  
(TsNIITMASH - "Ekonomayzer" Works)

Card 3/3

X

GETSOV, L.B.; ZHUKOV, N.P.

Heat-resistant foundry alloys. Lit.proizv. no.11:9-11 N '62.

(MIRA 15:12)

(Heat-resistant alloys) (Foundries—Equipment and supplies)

S/032/62/028/011/011/015  
B104/B102

AUTHOR: Getsov, L. B.

TITLE: Estimation of notch-sensitivity in fatigue tests

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 11, 1962, 1368 - 1372

TEXT: A suggested method of estimating the sensitivity of a material to stress concentrators in fatigue tests is that of comparing the equivalent stresses in smooth specimens with those in specimens which have annular grooves. The equivalent stress in a specimen with an annular groove may be taken to be either the stress on the surface or the stress in a zone situated at a certain distance below the surface, averaged over the whole period of the test and therefore taking account of time variations in the stress concentration: ✓

$$\sigma_{s,n}^{(1)} = \left[ \frac{1}{t_p} \int_0^{t_p} \sigma^m(t, R = \text{const}) dt \right]^{1/m}; \quad (1).$$

Alternatively the equivalent stress may be taken to be the stress averaged both over the testing period  $t$  and over the radius of the specimen

Card 1/3

Estimation of notch-sensitivity...

S/032/62/028/011/011/015  
B104/B102

$$\sigma_{\text{eq}}^{(2)} = \left[ \frac{1}{t_p R_0} \int_0^{t_p R_0} \sigma^n(t, R) dt dR \right]^{1/n} \quad (2).$$

Which of these two averagings to adopt needs to be decided by the formation and development of cracks in the material at a certain temperature. To calculate the equivalent stress  $\sigma_{\text{eq}}$  of a smooth specimen, the variation of the cross-section contraction during the test is described by

$\psi = a - a^2 + a^3 - a^4$ , where:

$$a = \psi_{\text{in}} + (\psi_p - \psi_{\text{in}}) \left( \frac{t - t_{\text{in}}}{t_p - t_{\text{in}}} \right)^n \quad \text{and}$$

$t_{\text{in}}$  the time until the occurrence of contraction,  $t_p$  the time until fracture,  $\psi_{\text{in}}$  the cross-section reduction of the specimen far from the contraction,  $\psi_p$  the relative contraction, and  $n$  a constant. At low temperatures,  $\sigma_{\text{eq}}^{\text{H}}$  is greater than  $\sigma_{\text{eq}}^{\text{L}}$ , and the plastic properties have low values. At medium temperatures, the two equivalent stresses are approximately equal, whereas  $\sigma_{\text{eq}}^{\text{H}} < \sigma_{\text{eq}}^{\text{L}}$  is observed at high temperatures only. In the former case the material is sensitive to grooves; in the two

Estimation of notch-sensitivity...

S/032/62/028/011/011/015  
B104/B102

other cases it is not. Finally the dependence of the notch-sensitivity on the test period, its temperature dependence, exceptions due to the occurrence of minimum deformation qualities in a certain temperature range, and how the conditions under which the specimens have been produced may affect the sensitivity are discussed. There are 3 figures.

ASSOCIATION: Mashinostroitel'nyy zavod "Ekonomayzer" ("Ekonomayzer"  
Machine Building Plant)

Card 3/3

GETSOV, L.B., kand. tekhn. nauk; TAUBINA, M.G., kand. tekhn. nauk

Materials for heavily loaded disks of gas turbines.

Energomashinostroenie 9 no.7:22-26 J1 '63.

(MIRA 16:7)

(Gas-turbine disks)

ALUMINUM ALLOY

1/0000/65/000/000/000/000

ALLOY: ALUMINUM ALLOY (includes all mechanical sciences); 15-75, 15-75

TITLE: Experiment with use of ALUMINUM ALLOY FOR GAS-TURBINE ENGINE

SOURCE: Reproduction of document, 1963, 15-75

NOTE TAGS: alloy, engine, heat treatment, strength, ductility, notch toughness, fatigue strength, grain size, nonuniformity, notch sensitivity, forging, casting, solid state, metal, metal, gas turbine, reliability

ABSTRACT: The ALUMINUM ALLOY (0.02% max C, 0.02% max Si, 1.0% max Mn, 15.0-17.0% Cu, 0.0-1.5% Fe, 0.0-0.05% Pb, 0.0-0.05% Al, 0.02% max S, 0.02% max P) has found wide use in gas turbine parts. It is melted mostly in induction furnaces, but more recently also in arc furnaces. After multistage heat treatment (annealing at 1000°C for 2 hr, air cooling, cooling at 1000°C for 2 hr, at 900°C for 1 hr, at 850°C for 2 hr, and aging at 750°C for 20 hr and at 700°C for 10 hr) the alloy has rather widely improved mechanical properties: tensile strength of 90-115 kg/mm<sup>2</sup>, yield strength of 57-65 kg/mm<sup>2</sup>, elongation of 20-10%, reduction of area of 25-50%, and notch toughness of 7-21%. Nozzles and blades

Card 1/2



BORZDYKA, A.M.; GETSOV, L.B.

New developments in instrumentation and methods of testing  
metals for creep and stress-rupture strength. Zav.lab.

29 no.3:332-334 '63.

(MIRA 16:2)

(Creep of metals)  
(Testing machines)

GETSOV, L.E.

On the parameter  $m$  of tension curves. Zav.lab. no.8:988-990  
'63. (MIRA 16:9)

1. Zavod "Ekonomayzer."  
(Metals--Testing)

GETSOV, L.B.

Testing for relaxation at high temperatures. Zav.lab. 29 no.11:  
1352-1354 '63. (MIRA 16:12)

1. Zavod "Ekonomayzer".

ACCESSION NR: AT4002340

S/3036/63/000/000/0239/0247

AUTHOR: Getsov, L. B. (Leningrad)

TITLE: To the problem of gas turbine part strength under conditions of repeated temperature changes

SOURCE: Voprosy\* vy\*sokotemperaturnoy prochnosti v mashinostroyeni. Vtoroye nauchnotekhnicheskoye soveshchaniye, 1962. Trudy\*. Kiev, 1963, 239-247

TOPIC TAGS: gas turbine part thermal fatigue, gas turbine blade thermal fatigue, gas turbine disk thermal fatigue, E1607 alloy thermal fatigue, E1787 alloy thermal fatigue, E1481 steel thermal fatigue, E1612 steel thermal fatigue, gas turbine blade safety margin, gas turbine disk safety margin, gas turbine, gas turbine part, gas turbine disk, E1607 alloy, E1787 alloy, E1481 steel, E1612 steel gas turbine blade, safety margin

ABSTRACT: Hollow blades and disks of a 600 kw gas turbine, manufactured by the "Ekonomayzer" plant, were tested for efficiency when exposed to the repeated temperature variations which occur during the 1500 to 3000 rapid starts of the turbine during its life (from 0 to 12000 rpm in 85 seconds, maximum temperature = 800 C). The turbine is of two-stage design; the first stage blades can expand freely, while the blades of the second stage are assembled in a ring. Alloy E1607A  
Card 1A2

ACCESSION NR: AT4002340

(cast or forged) was selected for the blades of the first stage, while the blades for the second stage were made either of the same material or steel E1787L (see Table I in the Enclosure). The results indicate that formation of flaws is attributable to a lack of clearance between turbine blade and ring. Disk tests used specimens made of steels E1471 or E1612. The tests covered several operational variants (see Fig. 1 in the Enclosure). The ratio

$$\sigma_{R \max} - \sigma_{R \min} > \sigma_{yt1} + \sigma_{yt2}, \quad (1)$$

where  $\sigma_{R \max}$  and  $\sigma_{R \min}$  are the maximal and minimal overall elastic stresses during a cycle, while  $\sigma_{yt1}$  and  $\sigma_{yt2}$  are elasticity thresholds at temperatures  $t_1$  and  $t_2$  (corresponding to  $\sigma_{R \max}$  and  $\sigma_{R \min}$ ), did not apply to any disk segments in variants I (772 cycles) or II (50 cycles). It did apply to the disk rim in variant III, where flaws were noted after 40 cycles for E1612 and after 75 cycles for E1481 (see Fig. 2 in the Enclosure). Orig. art. has: 2 tables, 3 graphs, 5 illustrations.

Curd 2/72

**"APPROVED FOR RELEASE: 09/24/2001**

**CIA-RDP86-00513R000514930014-4**



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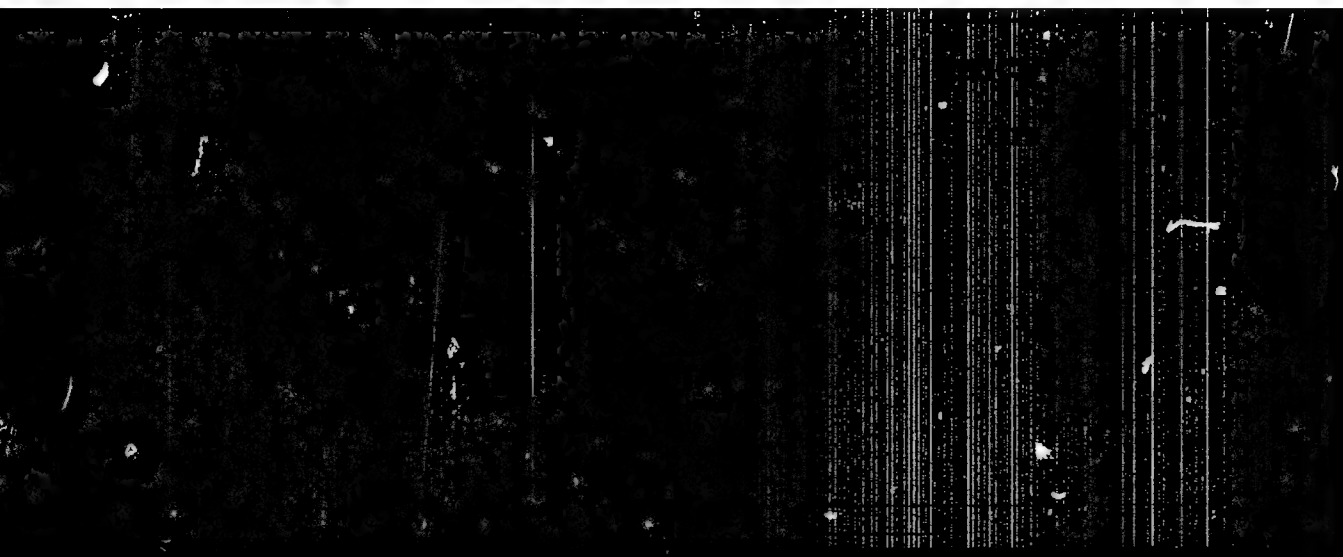


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**APPROVED FOR RELEASE: 09/24/2001**

**CIA-RDP86-00513R000514930014-4"**

ACCESSION NR: AP4025423

S/0096/64/000/004/0045/0049

AUTHORS: Getsov, I. B. (Candidate of technical sciences); Tret'yachenko, G. N. (Candidate of technical sciences); Kuriat, R. I. (Engineer)

TITLE: Structural strength of vanes on gas turbines

SOURCE: Teploenergetika, no. 4, 1964, 45-49

TOPIC TAGS: vane, turbine vane, gas turbine vane, metal strength, vane stiffness, vane heat resistance, steel EI 765, steel EI 827, steel EI 607 AL, steel EI 787L, steel EI 765L [L. 1]

ABSTRACT: This investigation was undertaken because of the formation of cracks on turbine vanes forged of steel EI-607A. The experimental vanes were forged of steels EI-765 and EI-827 and cast of steels EI-607AL, EI-787L, and EI-765L [L. 1]. The chemical composition (in %) of these metals is: for EI-765, C--0.12, Cr--14.75, Ni--trace, Ti--1.22, Al--1.84, W--4.94, Mo--3.96; EI-827 is a highly heat-resistant nickel steel; for EI-607AL, C--0.02, Cr--15.37, Ni--trace, Ti--1.63, Nb--1.10, Al--0.51; for EI-787L, C--0.04, Cr--14.5, Ni--34.16, Si--2.73, Al--1.00, W--3.03; for EI-765L, C--0.10, Cr--14.29, Ni--trace, Ti--1.44, Al--1.63, W--4.60,

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ACCESSION NR: AP4025423

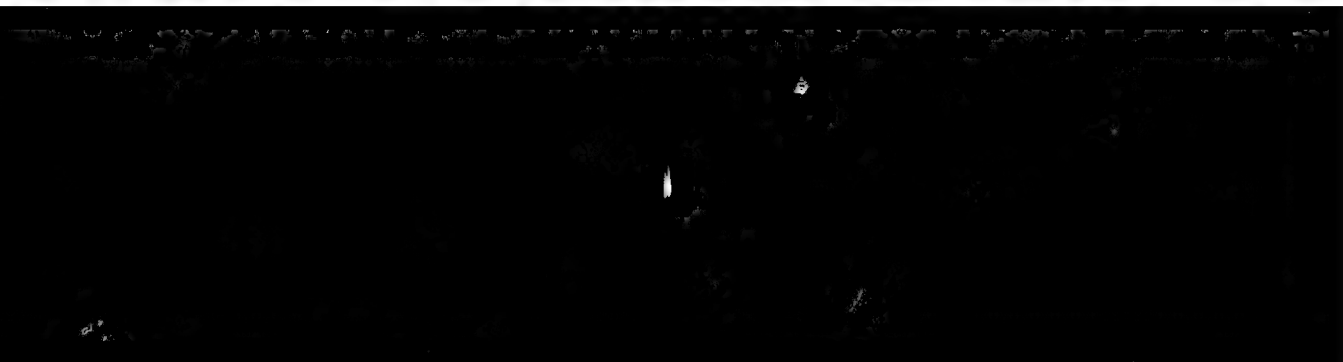
Mo--3.80. The vanes made of the first three steels were solid, those made of the last two were hollow. Their shapes and the location of thermocouples are shown in Fig. 1 on the Enclosure. The cast vanes (containing a small number of fine holes due to the presence of Ti and Al) were tested in the temperature cycles of 70-900C and 70-1000C, while the hollow ones were tested at 70-800C and 70-900C. The number of test cycles ranged up to 1000, with each lasting 2.25-4.20 min. Cooling air was delivered at the rate of 0.0075 kg/sec per blade and hot gas at the rate of  $\leq 0.25$  kg/sec per jet at an entry velocity of  $\leq 100$  m/sec. The number of thermal cycles sustained by each blade prior to the formation of cracks was recorded and the growth of the first crack (in the solid vanes) was observed. Both the cooled and the uncooled hollow vanes were studied. In all cases the majority of cracks formed at the outflow edges of the vanes. Though the number of experiments conducted was too small to form final conclusions, the preliminary observations indicate that: 1) steel EI-787L should be used in hollow guide vanes and EI-607A in solid ones for temperatures below 800C; 2) steel EI-827 may be used in vanes at temperatures up to 1000C on turbines requiring a limited number of starts (the long-term qualities of this steel should be checked further); 3) cooled vanes of steel EI-787L and EI-765L may be employed up to the temperature of 1200C, provided that the number of fast starts is limited; 4) hollow cast vanes should be

Card 2/4 3

Card 3/4 3

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**APPROVED FOR RELEASE: 09/24/2001**

**CIA-RDP86-00513R000514930014-4"**

GETSCV, L.B.

Method of evaluating the characteristics of failure of heat  
resistant materials (survey). Zav. lab. 30 no.11:1371-1379  
'64 (MIRA 18:1)

**"APPROVED FOR RELEASE: 09/24/2001**

**CIA-RDP86-00513R000514930014-4**



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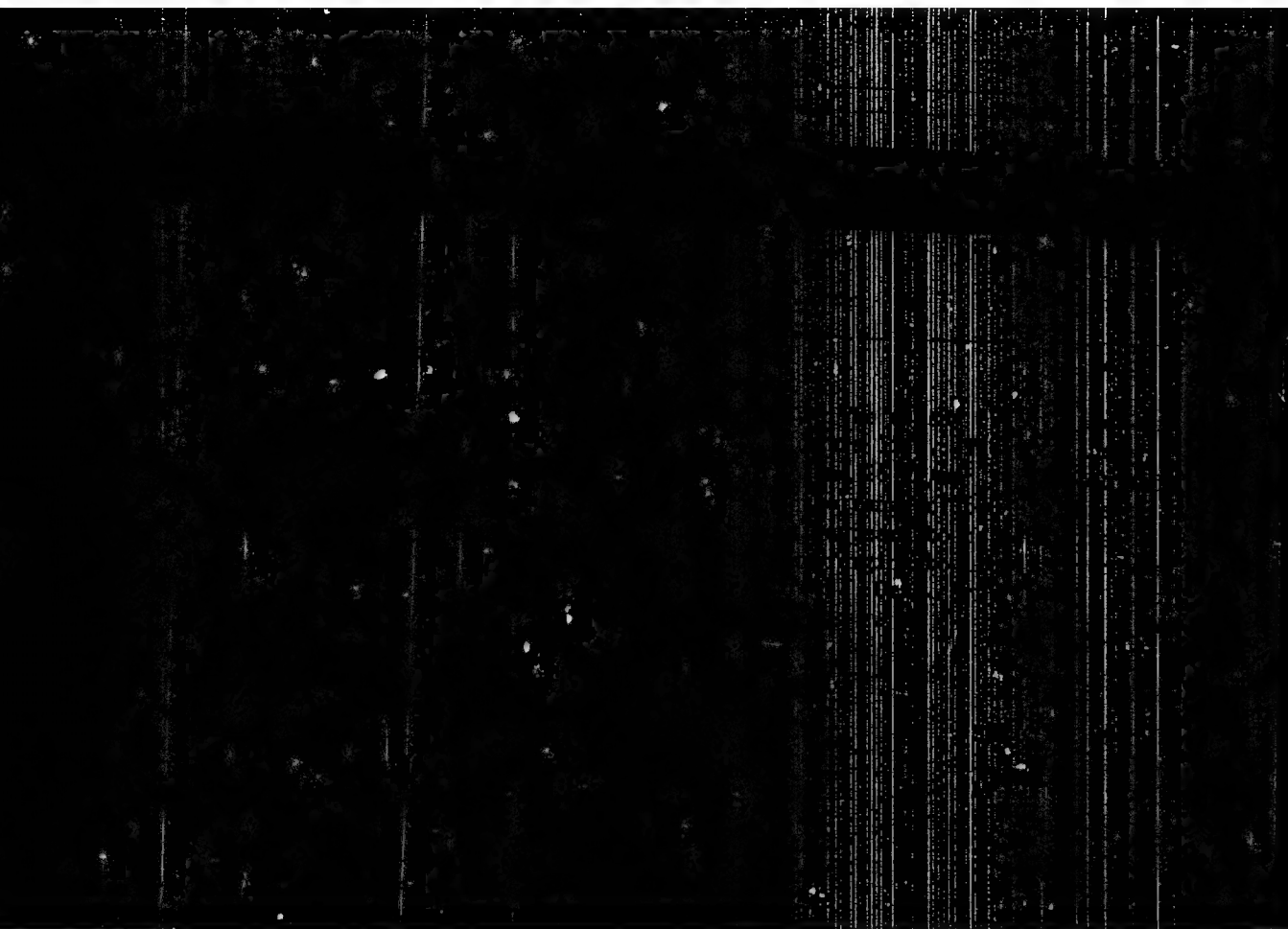


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**APPROVED FOR RELEASE: 09/24/2001**

**CIA-RDP86-00513R000514930014-4"**

L 38975-66 EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD/HW

ACC NR: AP6013363

(N)

SOURCE CODE: UR/0370/66/000/002/0110/0115

AUTHOR: Getsov, L. B. (Leningrad)

46  
E

ORG: none

TITLE: Short-duration creep and relaxation of certain heat resistant alloys

SOURCE: AN SSSR. Izvestiya. Metally, no. 2, 1966, 110-115

TOPIC TAGS: ferritic steel, martensitic steel, austenitic steel, pearlitic steel, metal property, heat resistant steel

ABSTRACT: The object of the work was to obtain the characteristics of stress-rupture strength, creep, and relaxation resistance for the following types of steel most commonly employed in gas turbine construction: pearlitic - 20Kh2MVF (EI415), ferritic-martensitic - 1Kh12VMF (EI802), austenitic - KhN35VT (EI612), and a nickel-base alloy, KhN80TBYuA (EI607A). The following curves were plotted: stress-rupture strength and creep resistance; instantaneous rate of creep versus accumulated creep strain; deformation curves; short-duration relaxation; and short-duration relaxation under repeated loads. Hardening during short-duration relaxation indicates that the exhaustion of the plasticity resource of the material under repeated load conditions may take place later than indicated by experiments with single loading. Engineers El'yasheva, R. A., and Lokalova, N. S., participated in the experimental part.

Card 1/2

UDC: 539.376

L 38977-66

ACC NR: AP6013363

Orig. art. has: 5 figures and 1 table.

SUB CODE: 11/ SUBM DATE: 22Sep64/ ORIG REF: 002/

Card 2/20021

I 33560-66 FWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD	
ACC NR: AP6012236	SOURCE CODE: UR/0129/66/000/004/0068/0069
AUTHOR: Getsov, L. B.; Taubina, M. G.	
ORG: none	
TITLE: Effect of structure on the creep strength of high-temperature alloys	
SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no 4, 1966, pp 68-69	
TOPIC TAGS: steel, metal aging, creep, structure, temperature dependence/ /3Kh19N9MVBT (EI572) steel, 4Kh12N8G8MFV (EI481) steel, KhN35VTYu (EI417) steel, Kh23N18 (EI787) steel	
ABSTRACT: The article deals with the effect of structural changes in hardened 3Kh19N9MVBT (EI572), 4Kh12N8G8MFV (EI481) and KhN35VTYu (EI417) steels and non- hardened Kh23N18 (EI787) steel; these steels are used as the material for gas-turbine elements. The changes in structure were accomplished by prolonged (up to 30,000 hr) exposure to operating temperatures (up to 800°C). Findings: at 20°C following pro- longed aging the decrease in the impact strength of Kh23N18 steel is due to the segregation of the $\sigma$ -phase. In 3Kh19N9MVBT steel the amount of the M <sub>23</sub> C <sub>6</sub> phase increases more intensively than that of the $\sigma$ -phase. The aging of 4Kh12N8G8MFV	
Card 1/3	UDC: 669.14.018:45:620.178.38

L 33560-66

ACC NR: AP6012236

steel leads to the coagulation of carbides and some increase in the amount of the  $M_{23}C_6$  carbide, which causes its softening. The prolonged aging of KhN35VTYu steel results in the segregation of the  $Ni_3TiAl$  phase along the grain boundaries, which reduces plasticity and impact strength. The investigated steels were subsequently tested for creep and stress-rupture strength and it was found that for Kh23N18 steel aging at 800°C and particularly at 750°C results in a sharp decrease in creep strength owing to the particularly intense segregation of the  $\sigma$ -phase at these temperatures. For 3Kh19N9MVB steel (Fig. 1), aging at 650°C increases creep

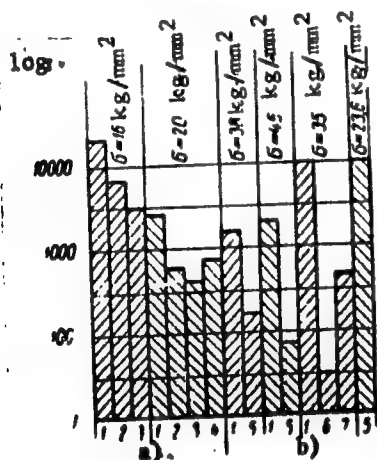


Fig. 1. Time to rupture as a function of the time and temperature of aging:

a - 3Kh19N9MVB steel; b - KhN35VTYu steel:

- 1 - original state; 2 - 650°C, 20,000 hr;
- 3 - 700°C, 8000 hr; 4 - 800°C, 2000 hr;
- 5 - 650°C, 10,000 hr; 6 - 600°C, 30,000 hr;
- 7 - 650°C, 30,000 hr

Card 2/3

L 33560-66

ACC NR: AP6012236

strength 14-20 times and reduces time to rupture 3-4 times; on the other hand, aging at 650°C (by contrast with 600°C) for 10,000 hr sharply increased the creep rate owing to the coagulation of second-phase particles. KhN35VTYu steel proved to be particularly susceptible to change in structure: its stress-rupture strength after 10,000 hr at 650°C decreased by roughly 30% following preliminary aging. Orig. art. has: 3 figures.

SUB CODE: 11, 13      SUBM DATE: none/

Card 3/3

L 46025-66 EWT(d)/EWT(1)/T-2/EWP(1) IJP(c) WW/EC/OD  
 ACC NR: AT6017619 (N) SOURCE CODE: UR/0000/65/000/000/0296/0308

AUTHOR: Belkin, Yu. S.; Bodner, V. A.; Getsov, L. N.; Mart'yanova, T. S.; Ryazanov, Yu. A.

ORG: none

TITLE: Adaptive systems for the optimization work regimes and transient processes in a turbojet engine

SOURCE: Vsesoyuznaya konferentsiya po teorii i praktike samonastroyayushchikhsya sistem. Ist, 1963. Samonastroyayushchiye sistema (Adaptive control systems); trudy konferentsii. Moscow, Izd-vo Nauka, 1965, 296-308

TOPIC TAGS: optimal automatic control, turbojet engine, thrust optimization, SELF ADAPTIVE CONTROL

ABSTRACT: Synthesis and analysis of an adaptive system to optimize and control various parameters of a turbojet engine is presented. The equations of the system are written out in detail and numerical data are tabulated. The analysis was performed using analog simulation and the graphical results are presented. The control parameters considered were the rpm of the turbo-compressor, the inlet and afterburner temperatures and the turbine pressure gradient. The control inputs considered were the main fuel consumption, the afterburner fuel consumption, and the nozzle cross section. Orig. art. has: 16 formulas, 7 figures, 1 table.

SUB CODE: 12,13,21/ SUBM DATE: 22Nov65

Card 1/1

S/682/62/000/004/005/006  
D234/D308

26.2190  
AUTHORS:

Getsov, L.N. and Mart'yanova, T.S.

TITLE:

Investigating the dynamics of control of a turbo-propeller engine with a restrainer of negative traction

SOURCE:

Avtomaticheskoye regulirovaniye aviadvigateley;  
sbornik statey, no. 4, Moscow, 1962, 103-118

TEXT:

The authors give the results of a theoretical investigation. Conditions under which the restrainer operates are stated. Equations for the engine as an object of control; for the astatic regulator of the number of revolutions and for the restrainer are given. It is stated that the case  $n = \text{const}$ , where the restrainer acts together with the regulator of  $n$ , is the most interesting. The stability of the control system is analyzed. For transition regimes, the system was investigated on a modelling installation; results are given. It is concluded that for securing stable control of traction with admissible transition processes, the hysteresis in

Card 1/2

Investigating the dynamics ...

S/682/62/000/004/005/006  
D254/D308

the traction meter should not exceed  $\pm 0.5\%$  and the time constant of the servomotor must be  $< 0.2 \div 0.3$  sec. There are 15 figures and 1 table.

✓B

Card 2/2

GETSOV, L.N.; MART'YANOVA, T.S.

Investigating the dynamics of automatic control of a turboprop  
engine having a limiter of the negative thrust. Avtom.reg.  
aviadvig. no.4:103-118 '62. (MIRA 15:11)  
(Airplanes--Turbine-propeller engines)

SA GETSOV M.A.

B 64  
f

279

621 315.17 - 82

Exemption of temporary needs of transmission lines for  
quick restoration of electrical supply. GAZNET,  
M. A. AND DUBINSKY, L. I. *Elektr. St., Net.* 15-16,  
pp. 6-8, Aug., 1941.—New "Technical Conditions"  
have been issued, owing to the urgency of restoring  
the electric supply in cases of air raids, etc. Simplified  
rules and a lower safety coeff. are permitted. 5. 1

SHABUROV, Solomon Ivanovich, ~~CHESOV, M.A.~~, red.; MATVEYEV, G.I., tekhn.red.

[Special aspects of planning electric transmission lines in  
mountain regions] Spetsial'nye voprosy proektirovaniia  
gornykh linii elektropredachi. Moskva, Gos.energ.izd-vo,  
1959. 111 p. (MIRA 12:3)

(Electric lines--Overhead)

GETSOVA, A.B., LOEINA-LOEINSKIY, L.K.

Role of insect behavior in the process of adaptation to plant  
food. Zool.shur. 34 no.5:1066-1079 S-O '55. (MIRA 9:1)

1.Yentestvenno-nauchnyy institut imeni P.F.Lesgafta.  
(Phytophaga)

GETSOVA A.B.

USSR/General and Specialized Zoology - Insects.

P.

Abs Jour : Ref Zhur - Biol., No 8, 1958, 35188

Author : Getsova, A.B., Lozina-Lozinskiy, L.K.

Inst : The P.F. Lesgaft Institute of Natural Sciences.

Title : To the Problem of Conditioned Reflexes in Insects and  
Methods of Their Study.

Orig Pub : Izv. Estestv.-nauchn. in-ta im. P.F. Lesgafta, 1957, 192-  
198.

Abstract : In the production of conditioned reflexes to colors in the  
domestic fly *Musca domestica*, the visits by the flies to  
a color stimulus (a circle of paper with or without food  
in the control circle) were automatically registered:  
sitting on the circle the fly closed an electric chain of  
special design connected with a kymograph. The domestic  
fly distinguished colors by spectral composition,

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USSR / General and Specialized Zoology. Insects. Physiology  
and Toxicology.

P

Abs Jour : Ref Zhur - Biologiya, No 16, 1958, No. 73570

Author : Gatscva, A. B.

Inst : Academy of Pedagogic Sciences RSFSR

Title : The Role of Some Sense Organs (Hemoreceptors) in the  
Behavior of Insects

Orig Pub : Izv. Akad. pod. nauk RSFSR, 1957 (1958), vyp. 85, 259-  
269

Abstract : No abstract given

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6-1 150.0

AUTHORS: Getsova, A. B., Lapinskaya, Ye. M., Khenokh, M. A. 20-1-22/58

TITLE: The Development of Eggs in Antheraea Pernyi Under the Influence of Ultrasonic Treatment (Vliyaniye ul'trazvuka na razvitiye yaits dubovogo shelkopryada).

PERIODICAL: Doklady AN SSSR 1958, Vol. 118, Nr 1, pp. 78-79 (USSR)

ABSTRACT: According to the references in literature ultrasonic oscillations can influence the development of the seeds of various plants as well as stimulate the development of various animals. In this connection the authors tried to determine if ultrasound can be used for the acceleration of the development of the eggs of antheraea pernyi, which would be of practical importance. The sound treatment was carried out at various stages of development of the embryo and the duration of exposure to this treatment was also different. As experimental material served the eggs of antheraea pernyi of the first generation of spring 1956. The eggs were exposed to sound treatment in a test glass with distilled water at temperatures of from 13 - 15°. Also the treatment of the control eggs is described. From the time of hatching as well as from the number of surviving caterpillars the influence of the ultrasonic oscillations on the velocity of development as well as on the rate of surviving

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The Development of Eggs in *Antheraea Pernyi* Under the Influence of Ultrasonic Treatment. 20-1-22/58

embryos was determined. The ultrasonic oscillations were produced by means of an ultrasound generator (300 - 400 Watt, 125 kc). The influence of the duration of exposure on the velocity of development of embryos is mentioned in a table. Especially in the begin of the development (on the first day) the ultrasonic oscillations have a stimulating effect. Most stimulating is a from 2 - 3 minutes lasting exposure. The exposure at the begin of the development shortens the fortnight-long development of embryos by 3 days, i. e. 21 %. With an exposure of 60 and 90 minutes the stimulating effect of ultrasound decreases to 8,3 %. Also during the development of the embryonal band ultrasound has a stimulating effect. But an exposure carried out during blastokinesis leads to the death of the embryo. An exposure of the eggs of from 1 - 30 minutes has the most stimulating effect. Therefore ultrasonic oscillations can accelerate the development of the eggs of the *antheraea pernyi*. There are 16 references, 11 of which are Slavic.

Card 2/3

GETSOVA, Anna B.

"Description of Radioactive Matters in some Aquatic Invertebrates."

report presented at the Intl. Congress of Entomology, Vienna, Austria,  
17-25 August 1960.

Zoological Inst, Leningrad.

S/020/60/132/05/60/069  
B011/B002

AUTHORS: Timofeyev-Resovskiy, N. V., Timofeyeva-Resovskaya, Ye. A.,  
Milyutina, G. A., Getsova, A. B.

TITLE: Coefficients of the Accumulation of Radioisotopes of  
Sixteen Different Elements by Fresh Water Organisms and  
the Influence of Complexon EDTA on Some of Them

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 5,  
pp. 1191-1194

TEXT: The accumulation coefficient (AC) of radioisotopes can be easily determined by means of tagged atoms. By AC one understands the ratio between the concentration of the respective isotope in an organism and its concentration in water. Data concerning sixteen isotopes as well as nineteen plant- and seventeen animal species are compiled in the present paper. Moreover, experimental results are specified concerning the influence of EDTA (ethylene diamine tetraacetate or Trilon B) upon AC. The authors studied the accumulation coefficients of the isotopes of P, S, Ca, Fe, Co, Zn, Ge, Rb, Sr, Y, Zr, Nb, Ru, I, Cs, and Ce. Special

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Coefficients of the Accumulation of Radio-  
isotopes of Sixteen Different Elements by  
Fresh Water Organisms and the Influence of  
Complexon EDTA on Some of Them

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experiments revealed that AC, in the case of a micro-concentration of isotopes, is not greatly dependent on their concentration in water. Previous experiments conducted by the authors (Ref. 10) indicated that AC was rather quickly stabilized. Experiments were made in aquariums at room temperature. Fig. 1 offers a survey of AC in the case of plants and animals. It results therefrom that AC of plants are higher than those of animals with respect to all elements mentioned (except P and Sr). Furthermore, the elements form two groups: such with high (some thousands) and such with low AC. To the former belong: P, Fe, Co, Zn, Y, Zr, Nb, and Ce, to the latter all the rest, especially S, Ge, I, and Cs. With plants, the following yield especially high AC: Fe, Zn, Y, Nb, and Ce, with animals: Co, Zn, Y, Nb, and Ce. Table 1 offers numerical values of AC cross sections. It follows therefrom that in plants this value is about four times, for  $Sr^{90}$ ,  $Y^{91}$ ,  $Zr^{95}$ ,  $Ru^{106}$ ,  $Cs^{137}$ , and  $Ce^{144}$  somewhat higher than in animals. The authors offer experimental results on the EDTA influence on AC of fifteen isotopes in seven plant- and five animal species (Fig. 2). It may be seen therefrom that in the presence of EDTA,

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Coefficients of the Accumulation of Radio-  
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the accumulation coefficients of Fe, Co, Zn, Y, and Ce drop markedly (by the 10-100fold). The accumulation coefficients of Ca, Zr, Nb, Ru, and I are somewhat reduced, those of Rb, Sr, and Cs are increased, and those of all other elements are practically left almost unchanged by EDTA. The authors explain the action mechanism of EDTA in individual elements by differently high stability constants of their complex compounds with EDTA. The S, Ge, and I, which are not influenced by EDTA, probably do not form any compounds with the latter. The reduction of the accumulation coefficients of Zr, Nb, and Ru as well as the increase of those of Rb and Cs are not explained by direct EDTA action, but by a disturbance of the Ca reaction under the influence of EDTA. The most dangerous are Sr- and Cs isotopes as components of contaminated water. Possibly, the addition of Trilon B to contaminated water may promote the biological purification from isotopes. The authors made experiments in this respect. Papers by V. I. Vernadskiy (Ref. 8) and A. P. Vinogradov (Ref. 9) are mentioned. There are 2 figures, 1 table, and 16 Soviet references.

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Coefficients of the Accumulation of Radio-  
isotopes of Sixteen Different Elements by  
Fresh Water Organisms and the Influence of  
Complexon EDTA on Some of Them


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Card 4/4



GINTSOVA, A.B.

Desorption of radioisotopes from some aquatic invertebrates.  
Dokl.AN SSSR 137 no.2:459-461 J1 '60. (MIRA 13:7)

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